



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,216	10/28/2003	Michael Patrick Harmon	08350.3198	3004
22852	7590	01/17/2006		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413				
			EXAMINER RIDDLE, KYLE M	
			ART UNIT 3748	PAPER NUMBER

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/694,216

Applicant(s)

HARMON, MICHAEL PATRICK

Examiner

Kyle M. Riddle

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11172005</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

#### ***Claim Objections***

1. Claim 8 recites the limitation "a second impact absorbing device" in page 3, claim 8, lines 1-2 of the claim. There is insufficient antecedent basis for this limitation in the claim as there is no mention of a first impact absorbing device in claim 8 or claim 1, from which claim 8 depends.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al. (U.S. Patent 4,708,101) in view of Luria (U.S. Patent 4,084,557).

Re claims 1, 9, 13, and 16, Hara et al. disclose a block defining a combustion chamber (Figure 8A, Abstract); a crankshaft (See Figure 8A, Abstract); an engine valve 12 (Figure 8A) operatively associated with the combustion chamber and moveable between a first position at which the engine valve prevents a flow of fluid relative to the combustion chamber and a second position at which the fluid flows relative to the combustion chamber (Abstract; column 3, lines 23-62); a cam follower 15 (Figure 8A) operatively connected to the engine valve 12; a first cam 13 (Figure 8A) adapted to engage the cam follower 15 such that the rotation of the first cam 13, in response to a rotation of the crankshaft, acts to move the engine valve 12 from the first

Art Unit: 3748

position to the second position during a first lift period (Figures 12 and 13; column 6, lines 24-68 with column 7, lines 1-39); a second cam 17 (Figure 8A) adapted to engage the cam follower such that the rotation of the second cam 17, in response to a rotation of the crankshaft, acts to affect the movement of the engine valve from the first position to the second position during a second lift period (Figures 12-13; column 6, lines 24-68 with column 7, lines 1-39); a phase shifting device 23 (Figure 8B) operatively connected to the first cam 13 and adapted to adjust the relative timing between the first lift period and the second lift period (column 4, lines 65-68 with column 5, lines 1-16); and an actuator mechanism operatively connected to and rotating cam control shaft 18 and second cam 17 to adjust the lift between a first lift period and a second lift period (column 7, lines 40-67 with column 8, lines 1-22).

Re claims 2 and 17, Hara et al. disclose the phase shifting device includes a helical spline and a hydraulic actuator (Figures 9 and 10).

Re claims 3, 10, and 18, Hara et al. disclose the second lift period overlaps with at least a portion of the first lift period (Figures 12 and 13).

Re claims 4 and 19, Hara et al. disclose the cam follower 15 includes a first end and a second end, the first end and the second end being pivotable about a central axis (Figure 8A).

Re claims 5 and 20, Hara et al. disclose the first cam 13 (Figure 8A) selectively engages the first end of the cam follower 15 and the second cam 17 (Figure 8A) selectively engages the second end of the cam follower 15 through lever 16 (Figure 8A).

Re claims 6 and 21, Hara et al. disclose cam follower 15 as a rocker arm (Figure 8A) operatively connected to the engine valve and a push rod or lever 16 (Figure 8A) operatively connected to the cam follower 15 or rocker arm.

Re claims 7, 8, 11, 12, 14, 15, and 22, Hara et al. disclose a first impact absorbing device or follower 15 adapted to absorb the impact between the first cam 13 (Figure 8A) and the first end of the cam follower 15, and a second impact absorbing device or lever 16 adapted to absorb the impact between the second cam 17 (Figure 8A) and the second end of the cam follower 15.

Hara et al. fail to disclose a cam follower with a fixed pivot, a second lift period affecting movement of the engine valve from a second position to a first position, two cams that rotate the cam follower about a pivot, and the second cam selectively engaging and disengaging the cam follower.

Luria teaches a valve actuation mechanism with a first cam 12 acting through a follower 16 and pushrod 18 to rotate a rocker arm 20 about a fixed pivot 80 actuating engine valve 8 (column 3, lines 45-50; Figures 1, 4a-4c, 5a-5c), a second cam 34 that rotates the rocker arm 20 about the fixed pivot 80 (column 3, lines 66-68 with column 4, lines 1-6; Figures 1, 4a-4c, 5a-5c) to affect the valve closing during a second lift period (column 6, lines 15-34), the second cam 34 selectively engaging or disengaging the rocker arm 20 (column 5, lines 47-68 with column 6, lines 1-34; Figures 1, 4a-4c, 5a-5c). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Luria in the valve timing system of Hara et al., since the use thereof would have provided a definite pivot point and more control of the valve closing events.

#### *Response to Arguments*

4. Applicant's arguments filed 22 August 2005 have been fully considered but they are not persuasive.

Art Unit: 3748

5. Applicant has amended independent claims 1, 9, 13, and 16 to more clearly define the invention over the previously cited art. However, the combination of the above cited invention to Lucia and the previously cited invention of Hara et al. disclose all the claimed features and limitations. Applicant argues the independent claims as amended read over the cited prior art, but the combination of Hara et al. with Lucia clearly read on all the cited claims.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### *Conclusion*

7. The IDS (PTO-1449) filed on 17 November 2005 has been considered. An initialized copy is attached hereto.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 2 patents.

Art Unit: 3748

- Tourtelot, Jr. (U.S. Patent 4,382,428) discloses a contoured finger follower variable valve timing mechanism with different lift periods.

- Leman (U.S. Patent 6,679,207) discloses an engine valve actuation system with two cams, a pushrod, and a rocker with a fixed pivot point.

*Communication*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (571) 272-4864. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kyle M. Riddle  
Examiner  
Art Unit 3748

kmr



THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700